UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

3D SYSTEMS, INC., Plaintiff, v. ENVISIONTEC, INC., ENVISIONTEC GMBH, and SIBCO, INC., Defendants.	)	Case No. 2:05-cv-74891 Hon. Avern Cohn Magistrate Judge R. Steven Whalen

JULY 29, 2008 DECLARATION OF A. EL SIBLANI IN OPPOSITION TO PLAINTIFF'S MOTION FOR SUMMARY JUDGMENT OF INFRINGEMENT

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3D SYSTEMS, INC., Plaintiff, v. **ENVISIONTEC, INC., ENVISIONTEC GMBH,** and **SIBCO, INC.,** Defendants.	Case No. 2:05-cv-74891 Hon. Avern Cohn Magistrate Judge Hon. R. Steven Whalen

DECLARATION OF A. EL SIBLANI

I, A. El Siblani, submit this Declaration in support of Defendants' Motion for Summary Judgment of Non-Infringement. The facts set forth below are based on my personal knowledge, and if called to testify, I could and would testify competently thereto:

1. I am the Chief Executive Officer of each of the Defendants in the above-entitled lawsuit.

2. I have over 15 years of experience in the rapid prototyping industry. I received a Bachelor of Science Degree in Electrical Engineering from Lawrence Technological University in 1990. I received a Master's Degree in Electrical and Computer Engineering from Wayne State University in 1993.

3. I founded defendant Envisiontec GmbH in December 2002 after purchasing the assets of a company called Envision Technologies GmbH. At the time, Envision Technologies GmbH had a non-functioning rapid prototyping device called "Perfactory," which is short for "Personal Factory." I, along with other members of Envisiontec GmbH, modified the design of the machine in several respects, and eventually commercialized several devices sold under the

name "Perfactory." The Perfactory devices include Perfactory Standard, Perfactory SXGA+ Standard, Perfactory SXGA+ Standard UV System, Perfactory Mini Multi Lens, Perfactory^3 III UV, and the Perfactory XGA Desktop system. I am knowledgeable about the mechanical design of the Perfactory devices and about aspects of the software programs used by the devices.

4. I founded Defendant Envisiontec, Inc. in 2003. Envisiontec, Inc. is separately incorporated from Envisiontec GmbH and is the exclusive distributor of the Envisiontec GmbH Perfactory devices in the United States.

5. Over the last several years, Envisiontec, Inc. and Envisiontec GmbH have developed rapid prototyping devices sold under the name "Vanquish." The Vanquish devices include the Vanquish+ Perfactory^3 System and the Vanquish Flash Cure System. The Vanquish devices were recently re-named "PerfactoryXtreme" and "PerfactoryXede". Envisiontec, Inc. is the exclusive distributor of the Vanquish devices in the United States.

6. I founded Defendant Sibco, Inc. ("Sibco") in 2002. Sibco is in the business of supplying materials for rapid prototyping devices and repairing rapid prototyping devices. Sibco does not sell either the Vanquish or the Perfactory devices.

7. I have operated or witnessed the operation of the Perfactory and Vanquish devices on numerous occasions. Attached as Exhibits 2 and 3 to Defendants' Motion are copies of videos showing the operation of the Perfactory and Vanquish devices. The exhibits accurately depict each of the Perfactory devices except for the Perfactory XGA Desktop system, which differs only in that it lacks the polymerization tray tilting mechanism of the other Perfactory devices.

8. The Perfactory and Vanquish devices create a solid model of an object based on a computer aided design ("CAD") model. They employ a photopolymer (or curable resin) which

is a viscous liquid material that solidifies when light is applied to it. The polymer contains chains of smaller molecules called "monomers" which polymerize to form long chains and/or form bonds between chains ("cross linking") in response to light. The solidification of the resin is generally referred to as "curing."

9. The Perfactory machine has a cabinet in which the digital light projector, DLP, is housed. A glass plate sits on top of the cabinet and is arranged so that light from the DLP is projected through it. A polymerization tray sits on top of the glass plate and holds a quantity of the curable resin. The bottom surface of the tray is a window which comes into contact with solidified resin during the process of building a part. A build platform is movably mounted on a vertical shaft that is attached to the top of the cabinet. During the build process the part is built upside down, and the build platform moves progressively upward and away from the polymer tray or basement.

10. With the exception of the Perfactory Desktop machine, each of the Perfactory machines includes a motorized basement tilting mechanism. Before the DLP applies light to the underside of the uncured resin, the tilting mechanism tilts the basement to release the recently cured resin from the basement window, and also allows resin to flow and eliminate any trapped bubbles. The build platform is then moved upward allowing fresh resin in the tray or basement to flow beneath the previously solidified voxels. The tilting mechanism is then moved back to its original position before the DLP applies light to the uncured resin again. The process is then repeated. A fill control system monitors the level of uncured resin in the polymerization basement and pumps fresh resin into the basement if the resin drops below a predetermined level.

11. Each one of the Vanquish machines includes a frame that houses a resin tank, a build platform, a digital light projector (DLP), and a pre-processing computer. The build

platform of the Vanquish devices is mounted on a vertical support and moves continuously downward during the build process without stopping. As the Vanquish build platform moves downward, the previously cured resin also moves downward allowing uncured resin to flow over it. A cooling blade moves across the upper surface of the resin because of the large amount of heat that is generated.

12. As explained in greater detail in the Declaration of Dr. Volker Schillen, the Perfactory and Vanquish devices use software which is called the Perfactory Software Suite. A computer aided design ("CAD") file is translated into a STL file which is only approximation information of the CAD data. Since every CAD software has its own format, there must be a STL translator that is capable of reading the CAD data and then translate it to a STL file. It is not possible to go back from a STL file to a CAD file if you wish to make accurate changes to the original design. After translation to the STL information, the STL file is then converted into a three-dimensional build envelope with individual voxel volumes before the information is transmitted for the purpose of building a part. A difference between the Perfactory/Vanquish software and the information disclosed in the patents in suit is the Perfactory/Vanquish software cannot generate a STL file from a CAD model. A CAD file is not a STL file and a translation of a CAD file is not equivalent to the original CAD model.

13. Dr. Schillen has explained that the voxel matrix used in the Perfactory and Vanquish devices results from providing a three-dimensional build envelope or volume and subdividing the build volume into volume elements which are called voxels. A determination is made as to whether there is an intersection between each voxel and the three-dimensional part to be manufactured. Depending on the intersection amount, if any, a brightness intensity value is assigned to each voxel volume which is unique for each voxel and independent of any other

voxel. The brightness intensity values or grayscale values are used to generate a bitmap stack for the entire build volume of the part to be manufactured before any exposure takes place.

14. Each voxel corresponds to a mirror in the DLP projector. Each mirror is capable of projecting light intensities ranging from 0-255, with 0 being the minimum intensity and 255 being the maximum intensity. During the build process, each time the DLP projects light to the resin it causes the resin to solidify at the specific voxel location. The brightness intensity value that is unique for each voxel is provided voxel-by-voxel to each individual mirror on the DLP projector. The information is not provided as a layer nor does the information represent adjacent layers. The three-dimensional information for the brightness intensity values is provided individually for each voxel volume. It is possible to increase the depth of curing for any individual voxel beyond the maximum voxel depth by assigning a grayscale value of 255 to one or more voxel volumes and then increasing the exposure time for specific voxel volumes to increase the depth of cure beyond the maximum voxel depth.

15. The build volume and voxelization process that is used in the Perfactory and Vanquish machines do not provide "data representing adjacent cross sectional layers of the three dimensional object to be formed which was generated on CAD system". Instead, with the voxelization process used in the Perfactory and Vanquish machines, light intensity is varied on a voxel-by-voxel basis where the light intensity for one voxel is independent of any other voxel. Further, as set forth previously, it is possible to increase the depth of curing of any individual voxel beyond the maximum voxel depth. Simply stated, there is no "data representing adjacent cross sectional layers" used in the voxelization process for the Perfactory and Vanquish machines.

16. The Perfactory machines do not form a uniform coating of a desired layer

thickness over a previously formed layer of the object. Instead, fresh resin flows under a previously formed section of the object. Further, the Perfactory machines do not include an applicator, a winged blade, or any structure that smoothes the resin. The Perfactory machines also do not include a vacuum pump.

17. In the Vanquish machines, the build platform moves continuously downward during the build process rather than in discrete steps. Further, the light for the DLP projector is always on. As described in the Declaration of Mr. Shkolnik, the Vanquish machines have a cooling element with a dual belt drive that differs substantially from a motor driven threaded drive shaft. The flexibility of the belts allows them to absorb vibrational energy whereas a motor driven threaded shaft transmits motor vibration to the resin or build platform. The Vanquish machines do not include a vacuum pump or an applicator. Instead, they include a movable cooling element and gravity feed.

18. Mr. Shkolnik describes that the movement of the cooling element in the Vanquish machine is intermittent and is done when the continuous exposure of the resin surface generates a substantial amount of heat. The animation, Exhibit 5, which was prepared by Mr. Shkolnik illustrates, for simulation purposes, a plurality of wedges which are representations of frozen moments in time if the resin material was not moving downwardly. This assists in understanding that a large amount of heat is generated during the exothermic reaction from curing since, in fact, the build platform for the Vanquish is moving continuously downward and the light source for the DLP projector is always on.

19. To further demonstrate that neither the Perfactory or Vanquish machines are capable of generating layers, I had parts built using the Perfactory/Vanquish voxelization process and the same parts built using the 3D Systems process. Micrographs showing the resultant parts

from the two processes are attached as Exhibits 6-8. It is quite apparent that the Perfactory/Vanquish voxelization process does not generate layers whereas the 3D Systems process does generate layers.

20. I am familiar with certain other rapid prototyping systems which apply radiation by drawing a radiation pattern across a resin. The DLP projector used in the Perfactory and Vanquish machines does not use a drawing process, but rather, applies light to each location to be cured. The use of a DLP projector to cure a resin differs substantially from processes that apply light by drawing. With drawing processes, the light source sequentially traverses each location to be cured across the resin surface. In contrast, the DLP technique projects light to each mirror which is movable to project the light to a unique voxel location on the resin surface. The DLP process is faster and more efficient than processes that draw upon a two-dimensional surface. Similarly, systems that use a UV (ultraviolet) or electric beam must "draw" a pattern on the resin.

21. I am also familiar with systems that use a spray and mask system. A spray and mask technique differs substantially from rapid prototyping systems that apply radiation by means of a drawing process because they require the use of chemicals and some means for generating and exchanging the masks used to generate each layer of the object. They do not lend themselves to automation and lack the speed and efficiency of a DLP system. I am unaware of any non-light radiation source that can be delivered with a unique intensity to individual voxel volumes. Thus, non-light radiation sources also differ substantially from the DLP projector system.

22. While earlier product manuals of Envisiontec GmbH mention the words "slice" or "layers," our use of the words resulted because those terms had been established in the industry

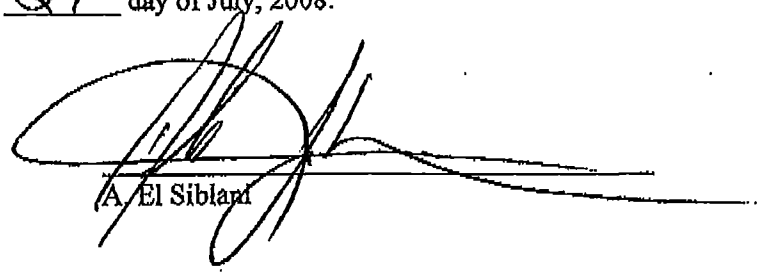
by 3D Systems and others, and others working in the industry at that time could not understand the terms voxel, voxel volume, voxelization, or DLP projection, and we did not have the financial resources to educate the industry regarding the terminology that actually applied to our technology. However, we do not "slice" or create "layers" as those terms have been established in the industry. As the special master and this Court have found, providing data representing adjacent cross sectional layers of the three-dimensional object to be formed refers to curing cross-sections of an object from a slice file. As has been stated previously, the Perfactory and Vanquish machines use a build volume and voxelization process where the light intensity is varied on a voxel-by-voxel basis thereby providing a unique curing depth for each location across the surface of the resin. The Perfactory and Vanquish machines use a build approach and technology that is completely different from the use of slice files and layers.

23. The Perfactory devices are provided with a program called "Magics," which is supplied by a third party company called the Materialise Group. The Magics program allows users to design supports for the objects they build with the Perfactory devices. The Magics software is provided with a platform file which contains all the parameters that will generate the specific type of structures required to build parts on the Perfactory. The web support, however, is not used when installing the platform file which defines the support structure types used by the Perfactory machine.

24. Exhibit 9 shows the supports designed by the Magics program which are provided with the Perfactory machines. The supports have a plurality of perforations through them and they also define a set of teeth which contact the object. The Perfactory supports are not solid. They also are substantially different than solid supports since solid supports consume more resin and prolong the building process. In addition, the teeth in the Envisiontec supports reduce the contact surface area between the object and the supports, making the object easier to remove from the supports at the end of the build process.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

Executed on this, the 29th day of July, 2008.



A. El Sibland

CERTIFICATE OF SERVICE

I hereby certify that on December 22, 2008, I electronically filed the foregoing paper with the Clerk of the Court using the ECF system which will send notification of such filing to the following: Jonathan A. David, Susan M. Kornfield and Alan N. Harris.

s/R. Terrance Rader

R. Terrance Rader (P28747)
RADER, FISHMAN & GRAUER PLLC
39533 Woodward Avenue, Suite 140
Bloomfield Hills, MI 48304
Tel: 248-594-0600
Fax: 248-594-0610
Email: rtr@raderfishman.com